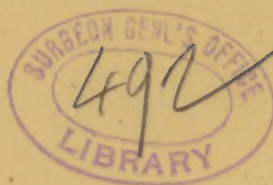


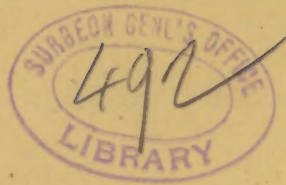
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TUBERCULOUS TUMORS OF THE CEREBELLUM IN A CHILD FOUR YEARS OLD—AUTOPSY AND MICROSCOPICAL EXAMINATION.

BY G. E. DESCHWEINITZ, M.D.,

Prosector of Anatomy in the University of Pennsylvania; Ophthalmic Surgeon to the Children's Hospital, Philadelphia; Ophthalmologist to the Orthopaedic Hospital and Infirmary for Nervous Diseases.

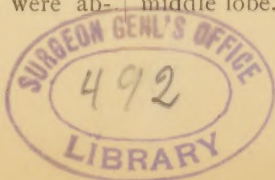
Reprinted from the Philadelphia Medical Times for May 14, 1887.

LIZZIE D., aged 4, was admitted to the Children's Hospital, March 17, 1886, for arthritis of the right elbow and on account of a train of symptoms then supposed to be the result of poor food and general neglect. The following family and personal history was obtained. The father was a peddler, and, except for occasional attacks of rheumatism, a healthy man. The mother had been a hard drinker, and six months previous to this date had become insane. Six children composed the family. The eldest was fifteen, but her prematurely-aged face made her appear many years older. One brother had died of Pott's disease. This child, the youngest, had always easily contracted colds, and eighteen months ago an injury caused the existing arthritis of the elbow. Two months before admission the child began to lose the power of her lower limbs, and when admitted she was unable to stand or walk, but the ability to move the limbs remained. At this time no marked ocular symptoms were noted by the attendants, but gradually it became evident that vision was failing, and a thorough examination revealed the following facts. The pupils were of medium and equal size; ordinary objects were not noticed, but a bright light was perceived. The optic disks were oval, white, and filled in; the nasal edges softened and veiled by a grayish haze; the veins were tortuous. The appearances were those of a beginning consecutive atrophy. There was no anæsthesia; the myotatic irritability was not increased. The appetite, digestive functions, and mental faculties were normal. Examination of the urine revealed that it was alkaline, and on standing crystals of ammonio-magnesium phosphate were deposited; sugar and albumen were ab-

sent. For a time no new symptoms appeared, but about the beginning of June the child began to fail rapidly.

On June 17 vomiting and obstinate constipation were marked symptoms, and on June 21 convulsions, tetanoid in type, set in and were more or less constantly present until death took place. On the evening of June 22 the breathing assumed the character usually described as Cheyne-Stokes respiration, and about four o'clock in the afternoon of June 23 the child died.

Autopsy.—No unusual external appearances. *Thorax.*—The heart and pericardium and the right lung and pleural cavity showed no abnormalities. On the left side there were extensive pleuritic adhesions from apex to base. The upper lobe of the left lung was small, shrunken, completely bound down, and, on section, cut like fibrous tissue. *Abdomen.*—Position of viscera normal. The mesenteric glands were slightly enlarged. In the left kidney there was a wedge-shaped caseous (tubercular) mass. In the remaining viscera no gross lesions were discovered. *Brain and its Membranes.*—There were no changes in the membranes over the upper surfaces of the hemispheres. The anterior surface of the brain was flattened, and incision into the lateral ventricles allowed the escape of a large quantity of clear fluid. At the base of the brain the pia mater was injected and spots of opacity were noted, but there was no lymph or pus. In the right cerebellar hemisphere there was an oblong, yellowish-white tumor, six centimetres long, that penetrated the tissue of the cerebellum to the depth of three centimetres, and whose inner end had pushed its way into the central portion of the middle lobe. In the outer part of the left



hemisphere a precisely similar though smaller tumor, two centimetres long and one and a half centimetres deep, existed. Well-marked distention of the optic-nerve sheaths, immediately behind the globe, was present.

Microscopical Examination.—The *optic papilla* was distinctly swollen and contained many nuclei. The cross-sections of the vessels showed that they were not shrunken, while their walls revealed some leucocyte infiltration. The retinal layers were displaced. *Optic nerve.*—The sheath of the nerve was greatly distended, and the intervening space occupied by a net-work of nucleated fibres and many free cells. The fibrous septa which separated the nerve-bundles were thickened, and the nerve-bundles themselves were infiltrated with numerous nuclei, while the separate fibres were granular and indistinct. In the fasciculi of the periphery the most marked atrophy was seen. The retinal vessels were oval in cross-section, but normal in appearance. The same pathological changes obtained throughout the entire length of the nerve, and existed also in those portions of the *optic tracts* which were studied. These were, unfortunately, only a very small part of their terminations in the commissure. In a study of some sections of the *chiasma*, especially such as were stained after the manner of Weigert, there certainly seemed to be a very distinct band of fibres across the anterior border of the commissure which connected the optic nerves on either side. This band would correspond to the inter-retinal fibres the existence of which has been denied by recent anatomists.

The tumors.—These were tuberculous masses which had undergone caseation. Scattered through the finely granular tissue of which they were composed were numerous giant-cells, either well formed or affected by the general caseation. Dr. William M. Gray, of the Army Medical Museum, to whom I am indebted for the preparation of many beautiful sections from these specimens, has succeeded in

demonstrating tubercle-bacilli in the larger tumor.

In the *pia mater* of the base of the brain the perivascular lymph-sheaths were fully distended with small round cells. In addition, there were extensive extravasations of blood-corpuscles and a general infiltration with young cells. Sections double-stained with carmine and sulpho-indigotate of potash showed particularly well this beginning tuberculous inflammation of the *pia mater*.

Lung.—In the upper lobe of the left lung very little true pulmonary tissue remained, and the alveolar walls of that which did exist were densely infiltrated with small round cells. The remainder of the lobe was composed of wavy fibrous tissue, through which, sometimes sparsely, sometimes in rich collections, a round-cell infiltrate was scattered. It seemed to be a tuberculous tissue undergoing fibroid change.

It seems useless to do more than report this case as an interesting example of tuberculous disease of the cerebellum. I will, however, briefly recapitulate for convenience the main points.

1. The pathological lesions were: two tubercular tumors in the cerebellum, the larger involving the middle lobe; beginning tubercular meningitis of the base of the brain; optic neuritis, and later consecutive atrophy of the disks; old tuberculous disease of the left lung; a caseous mass in the left kidney, and arthritis of the right elbow.

2. The symptoms were: the general appearances as if the patient had been underfed and neglected; progressive failure in the power of the lower limbs, without paralysis; blindness from the results of descending neuritis; at first normal appetite and digestive functions, but later vomiting and obstinate constipation; alkaline urine, which deposited triple phosphate crystals; convulsions, tetanoid in type; and for some hours before death Cheyne-Stokes respiration.

